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Sam Cheatham

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Hoge *et al.*

Appl. No.: 08/377,450

Filed: January 24, 1995

For: **Helical Scan Transport For Single
Reel Tape Cartridge**

Art Unit: 2512

Examiner: Korzuch, W.

Atty Docket: 1411.0210001

Declaration Under 37 C.F.R. § 1.132

Assistant Commissioner for Patents
Washington, D.C. 20231

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DEC 29 1995

Sir:

The undersigned, Samuel D. Cheatham, declares and states that:

GROUP 2512

1. I currently hold the title of Vice President of Corporate Strategic Initiatives for Storage Technology Corporation ("StorageTek"), Louisville, Colorado. From 1983 to April 1995, I served as the StorageTek Vice President of Engineering/Technology and Technical Support for both library and tape systems. (*See*, Exhibits 1 and 2.)
2. I have read and understood the Specification, Figures, and pending Claims set forth in the above-referenced patent application. This patent application is currently assigned to StorageTek.
3. I am very familiar with the StorageTek RedWood™ SD-3 Helical Scan Transport ("RedWood") which incorporates the technology of the claimed invention.
4. The RedWood has become a leading component of the StorageTek product line. In accordance with the claimed invention, the RedWood is a helical scan tape transport for a single reel tape cartridge with a *form factor* (*i.e.*, physical dimensions and layout) fully compatible with its predecessor longitudinal tape transports (*e.g.*, the StorageTek Timberline™ (36-track), Silverton™ (36-track), and model 4480 (18-track)).

5. The RedWood *form factor* feature provides complete compatibility, without modification, with all automated tape libraries, including StorageTek 4400 Automated Cartridge System (ACS) as well as the state-of-the-art StorageTek PowderHorn™ 9310 and WolfCreek™ 9360. In addition, the *form factor* provides enhanced versatility allowing end users to specifically tailor their library systems with both longitudinal and RedWood helical transports in accordance with application requirements. In fact, approximately 70% of the new library systems sold this year were equipped with both longitudinal and RedWood helical transports.

6. Moreover, the RedWood offers significant cost-of-ownership benefits for both existing and new automated tape libraries. For example, there are approximately 7,500 StorageTek automated cartridge libraries currently installed worldwide. The *form factor* compatible RedWood provides the potential of increasing the storage of these existing systems by a staggering 125-250 fold at minimal cost. In contrast, to provide a comparable automated tape library from major competitors, including E-Systems Inc. and Sony Corp., equipped with their corresponding helical transports, would require approximately 10 times the cost of the RedWood solution. This represents a fair cost comparison. That is, since the "non-RedWood" solutions provide neither *form factor* nor software compatibility, each data storage advancement generally requires significant upgrading of the entire library system.

7. In addition, for existing and new automated tape libraries alike, RedWood maintains the use of the single reel tape cartridges, thus continuing to provide a compact storage solution with minimum data center floor space requirements. As such, the data center floor space requirement of the RedWood solution is nearly 50% of that of the dual reel solutions, thus realizing a significant cost saving to the end user.

8. The actual and projected sales of the RedWood are meeting or exceeding expectations of StorageTek and industry analysts, such as the GartnerGroup. In February 1995, StorageTek first announced the RedWood. By the end of that first calendar quarter, this first commercial embodiment of the claimed invention had already generated substantial revenue and it appears that significant increases in demand will continue

throughout its introductory year. Indeed, StorageTek now projects that the RedWood will acquire a 5% share of all transport sales as early as March 1996.

9. By comparison, the current leading supplier of dual reel helical transports, E-Systems Inc., has only acquired a 2-4% market share over a two year period since its 1993 introduction into the market.

10. The industry's high expectations for the RedWood are evidenced by the significant interest of worldwide tape cartridge manufacturers. For example, it is estimated that start-up and tooling costs required to manufacture the RedWood single reel helical cartridges total approximately 1,000,000 dollars (U.S.). Despite this cost, however, StorageTek has found tape cartridge manufacturers are eager to commit to supplying the RedWood tape cartridges. Currently, a joint alliance of 3M Inc. and StorageTek is the sole provider of the RedWood tape cartridges. However, by November 1995, 3M will start marketing its own brand of cartridges. Moreover, StorageTek is also forging agreements with other major tape manufacturers from Europe and Japan.

11. In addition, the SD-3 recording standard format and tape interchange used with the RedWood tape cartridges have been adopted by the European Computer Manufacturers Association (ECMA). Similarly, standard proposals are also pending with the American National Standards Institute (ANSI) and the International Organization for Standardization (ISO).

12. The extraordinary commercial success and industry acceptance of the RedWood is materially attributable to the merits of the claimed invention including the *form factor* feature and its corresponding advantages (*e.g.*, compatibility, versatility, and low-cost).

13. The success of the RedWood is not the result of heavy promotion or advertisement, market demands, or any other extraneous business events. That is, StorageTek is using relatively the same advertising and marketing campaign that it has with other StorageTek product introductions in the recent years and, in my experience,

would not account for the extraordinary commercial success and industry acceptance of the RedWood.

14. Nor are the RedWood's commercial success and acceptance substantially due to the existing StorageTek user base. While StorageTek is a market leader, the RedWood has been the gateway for StorageTek into a spectrum of new and emerging applications and industries, including satellite real time down linking, film animation archiving, CAT scan and magnetic resonance imaging, seismic data recording for oil exploration, multi-media networks, and video-on-demand systems. To date, the RedWood purchasers have consisted of approximately equal numbers of existing and new StorageTek customers.

15. The RedWood's commercial success and acceptance are also not merely a result of demand for higher performance and capacity storage systems. For the last several years there has been an increasing demand, fueled in part by the advent of the information superhighway, for higher performance and capacity automated library systems. While the RedWood does in fact provide a solution, so do the competitor's (E-Systems) products which have been on the market as early as 1993. Since the RedWood's introduction, sales of the RedWood have significantly out paced those of the competitor. That is, given a choice between the RedWood and its competitor's transports, the industry appears to have elected the RedWood solution for its *form factor* feature and corresponding advantages (*e.g.*, compatibility, versatility, and low-cost) together with its data processing architecture.

16. While StorageTek forecasts that RedWood's commercial success will motivate its competitors to follow suit and attempt to provide *form factored* transports for single reel helical tape cartridges, StorageTek projects that such similarly featured products will not be on the market for at least several years due to significant development efforts which are likely to require approximately 60,000,000 dollars (U.S.).

17. I hereby declare that all statements made herein of my own knowledge are true; and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code; and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

By: Samuel D. Cheatham 11/27/95
Samuel D. Cheatham Date

CAC/sjc
P6-14.WPD

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Summary of Experience

Twelve years as an Executive (Vice President, 3 levels). Over twenty-five years experience encompassing executive responsibility, engineering management and electronic engineering. Executive and management experience ranges from start-up staffing and direction setting at a departmental level through organizational management of functions having diverse responsibilities. Management experience in product and technology development with planning, budgeting, personnel and technical responsibilities.

Present Assignment, Vice President, Corporate Strategic Initiatives

Vice President of Corporate Strategic Initiatives, report to the Chief Operating Officer for Storage Technology Corporation. This assignment involves improving and expanding business opportunities with major partners worldwide. Additional responsibility is for "Information Highway" initiatives and standardization strategy where applicable to StorageTek as a network connectivity and storage supplier.

Additional Responsibilities

In addition to my duties as Vice President, Corporate Strategic Initiatives, I am responsible for developing and setting corporate strategy in domestic and international standards activities such as ISO, ECMA and ANSI with the objective of assuring that StorageTek products continue to be marketable worldwide. In this capacity, I serve as an elected member of the ANSI Board of Directors and the Board of Directors Finance Committee. In addition, I am the StorageTek representative to the ANSI Company Member Council Executive Committee, ANSI Company Member Council, and Vice Chairman of the Technical Committee X3B5. I also am the Corporate Interface for StorageTek with IBM on patent, license and inter-company technical issues. I am also a member of the StorageTek CEO/CIO customer visit team.

Previous Assignments, Storage Technology Corporation

03/89 to 04/95 - Vice President of Engineering, Tape and Library Systems

Organizational management staff of 55 second and first level managers in a group of 390 headcount. Responsible for all development and continuation engineering for StorageTek Tape and Library Systems. *Additional responsibilities, as listed above were also included in this assignment.*

Previous Assignments, Storage Technology Corporation Con't.

03/88 to 03/89 - Vice President of Engineering, OEM and Storage Control Systems

A one year assignment to design, implement and staff the development organization for the Iceberg Array DASD Subsystem. Responsible for all phases of engineering and technology associated with disk, tape and solid state disk subsystems, controllers and OEM products. A complete modernization to StorageTek design tools and development methodologies was a parallel responsibility. Additional responsibilities are custom analog and digital LSI design and system performance modeling.

06/84 to 03/88 - Vice President of Engineering, Tape Products

Responsible for all phases of engineering and technology development for the Tape Division. Includes new product development, continuing engineering and technology development. Major accomplishment during this period was overall responsibility for the development of 4400 Tape Library and 4480 Tape Subsystems. Workscope includes organization structure, strategic planning, resource allocation, technology direction and guidance to marketing and field technical support.

06/84 to 06/84 - Vice President of Technology and Technical Support, Tape Division

Responsible for all technology development and support for tape products at STK. Organizational responsibility for Corporate Engineering and Corporate Documentation organizations supporting all STK product divisions.

I joined Storage Technology Corporation in 1978, serving in various management assignments. Promoted to Vice President in 1983. Prior to that time, I was with IBM for twelve years.

Technical Expertise

Background in magnetic recording, recording heads and media in computer peripheral products.

Other Proficiencies

Organizational Structure

Thin Film Tape and Disk Heads

Magneto-Resistive Head Technology

Honors, Awards, Publications, etc.

Author of ISO/US Information Paper, "Tape Product - The Next Generation"

Digital Design Magazine article, "Technology Promises a Bright Tape Future"

Twenty-five Patent points at IBM in Magnetic Head and Read/Write Engineering efforts

IBM First Level Invention Award (1977)

StorageTek Bronze Level Patent Award (1994)

Four Patents in Magnetic Heads and Read/Write Circuitry

Five Outstanding Achievement Awards in USAF (1962-1966)

Professional Associations and Memberships

Elected Member of ANSI Board of Directors
Elected Member of ANSI Board of Directors, Finance Committee
ANSI Company Member Council Executive Committee
ANSI Company Member Council
Vice Chairman of ASC X3B5 ANSI Technical Committee
StorageTek Representative to the ECMA General Assembly
Member of ECMA TC17 AND TC19
Member of ISO/TC97/SC11
IEEE
IEEE Engineering Management Society
IEEE Magnetics Society

Other

Married with one adult daughter
Hobbies: Radio controlled model aircraft and collecting limited edition aviation prints

Samuel D. Cheatham

Introduction Biography

Vice President of Corporate Strategic Initiatives, reporting to Mr. David Weiss, the Chief Operating Officer for Storage Technology Corporation. Present assignment involves improving and expanding business opportunities with major partners worldwide. Additional responsibility is the leadership role for "Information Highway" initiatives where they apply to StorageTek as a storage and network connectivity supplier. Continuing responsibility for setting StorageTek strategy for strategic standardization in organizations such as ISO, ECMA and ANSI, expanded to also address areas such as NII, GII and others appropriate to StorageTek business.

1983-1995 served as StorageTek Vice President of Engineering, responsible for all development and continuing engineering for Tape and Library Systems.

Promoted to Vice President in 1983, the primary assignment was overall development responsibility for the StorageTek Automated Cartridge Library and Tape Subsystem.